Catalog of State Actions
Energy Supply Technical Working Group

A catalog of state-level, GHG-reducing actions and policy options based on actions undertaken or considered by state, local and private actors. Brief descriptions of these options, and some of the related state actions underway, are available in a companion document.

Key to Preliminary Rankings of Options in the Tables that Follow:

Potential GHG Emission Reductions 1/	Potential Cost or Cost Savings 1/ 2/
High (H): At least 1.0 million metric tons (MMt) carbon dioxide equivalent (CO_2e) per year by 2020 (~1% of current WA emissions)	**High (H)**: $50 per metric ton CO_2e (tCO_2e) or above
Medium (M): From 0.1 to 1.0 $MMtCO_2e$ per year by 2020	**Medium (M):** \$5-50/tCO_2e
Low (L): Less than 0.1 $MMtCO_2e$ per year by 2020, or 1 MMtCO2e by 2050	**Low (L):** Less than \$5/tCO_2e
Uncertain (U): Not able to estimate at this time	**Negative (Neg):** Net cost savings
	Uncertain (U): Not able to estimate at this time
1/ Several measures may overlap in terRems of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures.	
2/ Costs are denoted by a positive number. Cost savings (i.e., "negative costs") are denoted by a negative number.	

Definition of "Priorities for Analysis":

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low**: Low priority options will be analyzed last, time and resources permitting.

Notation of Options:

* **Options marked in bold with an asterisk (*)** indicate some of the related state actions that are approved or underway, as described further in the companion options description document. TWG members are encouraged to provide information on other relevant actions.

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Contribution to 2035/2050 goals, Job Creation, Fuel Imports, Externalities, Feasibility	Priority for Analysis	Notes / Related Actions in WA State
ES-1	**EMISSIONS POLICIES AND OVERARCHING ITEMS**					
1.1	GHG cap and trade	U – depends on cap level	U – depends level and design			WA is part of the Western Regional Climate Action Initiative (2007), which will consider market-based mechanisms for GHG reduction goals. Market mechanisms and the WRCAI will be addressed broadly at the CAT level, as will be discussed at the June 5 meeting. *See option descriptions for TWG comments.*
1.2	Carbon (GHG) tax	U	U – depends on tax design			
1.3	**Generation performance standards** and/or **mitigation requirements for electricity *(S)**	H	L-M			SB6001 (2007) includes emissions performance standard for long-term financial commitments for baseload power HB 3141 (2004), EFSEC, Ecology establish rules for mitigation or offsetting of new power plant emissions
1.4	**Integrated resource planning (IRP) *(S)**	U	U			Electric Utility Planning Act (2006) requires IRPs by large utilities *CAT comment* Minimize impact on ratepayers *TWG comments* Consider ways of accounting for the risk of climate regulation in order to factor the cost of GHGs in to all resource decisions.
1.5	Voluntary GHG commitments	L-M	Neg-L			*TWG comments*: Several companies in WA State have set aggressive voluntary GHG reduction goals.
1.6	Technology Research & Development	U	U	Contributions to long-term goals		*TWG comments*: R&D incentives could include the use of investment and production tax credits, government loan guarantees or low interest

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Contribution to 2035/2050 goals, Job Creation, Fuel Imports, Externalities, Feasibility	Priority for Analysis	Notes / Related Actions in WA State
						loans, and through the use of public-private partnerships.
1.7 (NEW)	Climate Change Education Initiatives	U	U	Contributions to long-term goals		A comprehensive education effort on climate change that would be additional to focused education components of individual options
ES-2	**RENEWABLE ENERGY AND ENERGY EFFICIENCY**					
2.1	**Renewable and/or Environmental Portfolio Standard (RPS/EPS)*(S)**	H	L-M			2006 Energy Independence Act (Initiative 937) establishes RPS/EPS; rule-making currently underway *TWG comments*: Consider increasing the current standard above the 15% qualifying renewable energy for years beyond 2020. Consider including organic pulping by-products.
2.2	Grid-based **renewable energy incentives** and/or barrier removal***(S)**	L-M	U			Incentives provided through Renewable Energy System Cost Recovery (RCW 82.16.110) and Tax on Manufacturers or Wholesalers of Solar Energy Systems. *TWG comments:* Strategies include: encouraging increased rates of return for investor-owned utilities for renewable energy development beyond the requirements of existing law; providing tax incentives for public utilities to go beyond existing law; removing barriers to grid access.
2.3	Distributed **renewable energy incentives** and/or barrier removal***(S)**	L-M	U			See 2.2 above. *TWG comments:* Extend M&E tax credits for low-carbon technologies beyond 2009 Link to RCI TWG. Support consistent interconnections and pricing at the utility level; remove barriers to grid access.

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Contribution to 2035/2050 goals, Job Creation, Fuel Imports, Externalities, Feasibility	Priority for Analysis	Notes / Related Actions in WA State
2.4	Green power purchases and marketing	L-M	Neg-L			Washington State RCW 19.29A.090 directs larger electric utilities to offer their customers a green power electricity product *TWG comments:* Consider requiring all agencies of the state to purchase green power from their local utility starting at 20% and ramping up every two years. Consider requiring all new electric utility customers to opt-out of minimum green power requirement.
2.5	Combined Heat and Power (CHP) and Thermal Energy Recovery and Use	M-H	Neg-M			*TWG comments* Provide incentives and eliminate barriers, especially avoided cost barriers for CHP Barrier removal includes: improved interconnection policies, improved rates and fees policies, streamlined permitting, recognition of the emission reduction value provided by CHP and clean DG, financing packages and bonding programs, power procurement policies, education and outreach, Potential link to RCI TWG.
2.6	Pricing strategies to promote renewable energy and/or CHP (e.g. **net metering**)*(S)	L-M	L-M			State net metering law passed in 2006. *TWG Comments:* Provide incentives and eliminate barriers, especially avoided cost barriers Focus on resource acquisition pricing.
2.7	Renewable energy development issues (zoning, siting, etc.)	L-M	U			*TWG Comments:* Include need for changes to reduce legal problems for achieving federal incentives Two potential strategies (with some contradiction) for streamlining zoning are: a) bump renewable projects over 25 MW to state jurisdiction for permitting; b)

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Contribution to 2035/2050 goals, Job Creation, Fuel Imports, Externalities, Feasibility	Priority for Analysis	Notes / Related Actions in WA State
						encourage/provide incentives for energy overlays in county zoning[1]
2.8	Technology-focused initiatives (biomass co-firing, energy storage, fuel cells, etc.)	U	U	Contributions to long-term goals		*TWG Comments:* Include wave power, tidal, low-heat geothermal, concentrating solar, biomass technologies, spent pulping liquor to gas. Incentives include the use of investment and production tax credits, government loan guarantees or low interest loans, and through the use of public-private partnerships.
2.9 (NEW)	Efficiency improvements at existing renewable energy (hydro, wind, other) plants	M (maybe H)	L			Similar to option 3.3 but for renewables
2.10 (NEW)	Use carbon offsets markets to promote additional renewable energy development	U	U			*TWG Comments:* Consider ways to avoid double counting
ES-3	**FOSSIL FUEL AND NUCLEAR ELECTRICITY**					
3.1	Advanced fossil fuel technology incentives, support, or requirements					*TWG Comments:* Split this option into two sub-options of technology groups (see 3.1a and 3.1b below)
3.1a	Advanced fossil fuel generation and pre-combustion sequestration technologies	H/U	M	Contributions to long-term goals		

[1] Klickitat County "has proposed developing an Energy Overlay in which energy uses would be permitted outright following State Environmental Policy Act (SEPA) review and compliance with federal, state, and local regulations" as a means to encourage renewable energy development in areas that are most amenable to this development. http://www.klickitatcounty.org/Planning/ContentROne.asp?fContentIdSelected=2119658607&fCategoryIdSelected=948111261

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Contribution to 2035/2050 goals, Job Creation, Fuel Imports, Externalities, Feasibility	Priority for Analysis	Notes / Related Actions in WA State
3.1b	Post-combustion sequestration technologies	H/U	M	Contributions to long-term goals		
3.2	Nuclear power support and/or incentives	U	U			
3.3	Efficiency improvements and repowering existing plants	L-M	Neg-L			*TWG comments:* Incentives could take form of investment and production tax credits, government loan guarantees or low interest loans.
3.4	Technology-focused initiatives	U	U	Contributions to long-term goals		*TWG comments:* Incentives could include investment and production tax credits, government loan guarantees or low interest loans, and through the use of public-private partnerships.
ES-4	**FUEL PRODUCTION, PROCESSING AND DELIVERY**					
4.1	Oil and gas production: GHG emission reduction incentives, support, or requirements	L	Neg-L			
4.2	Natural gas transmission and distribution	L-M	Neg-L			
4.3	Oil Refining: GHG emission reduction incentives, support, or requirements	L-M	Neg-L			
4.4	Coal Production: GHG emission reduction incentives, support, or requirements	L	U			

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Contribution to 2035/2050 goals, Job Creation, Fuel Imports, Externalities, Feasibility	Priority for Analysis	Notes / Related Actions in WA State
4.5	Coal-to-energy Production: GHG emission reduction incentives, support, or requirements					*TWG Comments:* Split this option into two sub-option by type of process (see 4.5a and 4.5b below)
4.5a	Coal to liquids production	U	U			
4.5b	Coal-to-gas production	U	U			*TWG Comments:* Could also include Pet coke-to-gas and asphalt-to-gas
4.6	Low-GHG Hydrogen production incentives and support	U	U			*TWG Comments*: Utilities could provide incentives to use fuel cells in various industrial, commercial and home applications. Industrial plants could be provided with rate incentives and tax credits to consider projects to reform gas into hydrogen.
4.7	LNG policies and infrastructure	U	U	Could lead to increased fuel imports to WA		
ES-5	**CARBON CAPTURE AND STORAGE OR REUSE**					
5.1	CCSR incentives, requirements and/or enabling policies (administration, regulation, liability, incentives)	H/U	U			*TWG Comments* Identify potential carbon sequestration reservoirs (permanent geological storage and other permanent capture opportunities) CO_2 pipeline transmission issues (from source to reservoir) Policies for CO_2 sequestration - including state permitting, issues regarding short and long term liability Need for comprehensive legal and regulatory framework for CCSR Consider modifying traditional least-cost/least risk regulatory standard for IGCC and CCSR Consider tax credit plus accelerated depreciation as incentive

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Contribution to 2035/2050 goals, Job Creation, Fuel Imports, Externalities, Feasibility	Priority for Analysis	Notes / Related Actions in WA State
						Consider timely cost recovery standard (such as "pay as you go")
5.2	R&D for CCSR	U	U	Contributions to long-term goals		
ES-6	**OTHER ENERGY SUPPLY OPTIONS**					
6.1	Transmission system capacity, access, planning and incentives	H (enabling)*	U			*CAT Comment:* Include increased transmission capacity, expanding transmission system. *TWG Comments*: Provide incentives and eliminate barriers, for CHP through planning and access. One example would be conditional firm pricing for clean energy
6.2	Improve transmission and distribution system efficiency	L-M	U			*TWG Comments*: Could also include reductions in use and leakage of SF6 from distribution system transformers Plus efficient transformers and other materials and equipment.
6.3	General distributed generation support (interconnection rules, net metering, etc.)	U (enabling)[t]	U			
6.4	Environmental (GHG emissions) disclosure	U (enabling) [t]	U			House Bill 2565 (Fuel Mix Disclosure Law) requires retail electricity suppliers in Washington to provide a disclosure label to their retail customers. *TWG Comments*: Goal of transparency without excess burden from reporting. GHG disclosure could be added to consumer information. .

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Contribution to 2035/2050 goals, Job Creation, Fuel Imports, Externalities, Feasibility	Priority for Analysis	Notes / Related Actions in WA State
6.5	Support and/or promotion of smart grid development	U	U			

NOTES:
[t] *Enabling* – these options could increase the effectiveness of other options, rather than directly reducing GHG emissions.